Amphibian conservation in Switzerland - Karch and the story so far

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Photo: Emanuele Biggi

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Amphibian Conservation in Switzerland – karch and the Story So Far

By Benedikt R. Schmidt & Silvia Zumbach

Amphibian conservation has a long history in Switzerland. Conservation efforts began in the 1960's when people started to notice that many amphibians were being killed on roads and around the same time herpetologists noted that many amphibian habitats were being destroyed (Heusser 1968; Meisterhans and Heusser 1970). Habitat destruction is the main reason for amphibian declines in Switzerland with 90% of Switzerland's wetlands being drained or otherwise destroyed (Imboden, 1976). The best data are available for the Swiss canton Zurich (Gimmi et al. 2011). In 1850, wetlands covered 8.3% of the canton (n=4300 wetlands), this number decreased to 0.7% in 2000 (n=700 wetlands). The mean size of a wetland patch is now only 1.7 ha. It is therefore no surprise that wetland-inhabiting species are more threatened than species inhabiting terrestrial habitats (Cordillot & Klaus, 2012).

The first Swiss Red List of threatened amphibians was published in 1981 by Hotz and Broggi. Hotz and Broggi (1981) listed 15 out of 19 species as endangered. The most recent Swiss Red List, which is based on the criteria and categories of the IUCN, lists 70% of all species as Endangered (category EN), Vulnerable (category VU) or Regionally Extinct (RE; one species: the Green toad *Bufo viridis*). The proportion of Red Listed species in 2005 was lower than in 1981 but this is mainly due to a change in Red List assessment methodology. At the national level, many species are threatened even though they are not threatened globally. The main reasons for the threat status include small distribution ranges (e.g., *Hyla intermedia* and *Triturus carnifex*) or large population declines. Many species, such as *Hyla arborea*, *Bufo calamita*, *Alytes obstetricans*, *Bombina variegata*, *Lissotriton vulgaris,* and *Triturus cristatus* have suffered population declines of 50% since 1985.

Figure 1. Screenshot of karch web site.

The first systematic survey of amphibian breeding sites was completed in canton Zurich in the late 1960's (Escher, 1972). Later, systematic surveys were conducted in almost all cantons such that a comprehensive atlas of the distributions of the Swiss amphibians could be published in 1988 (Grossenbacher, 1988). Updated distribution maps were published by Meyer et al. (2009). Currently, roughly 12,700 amphibian breeding sites are known in Switzerland.

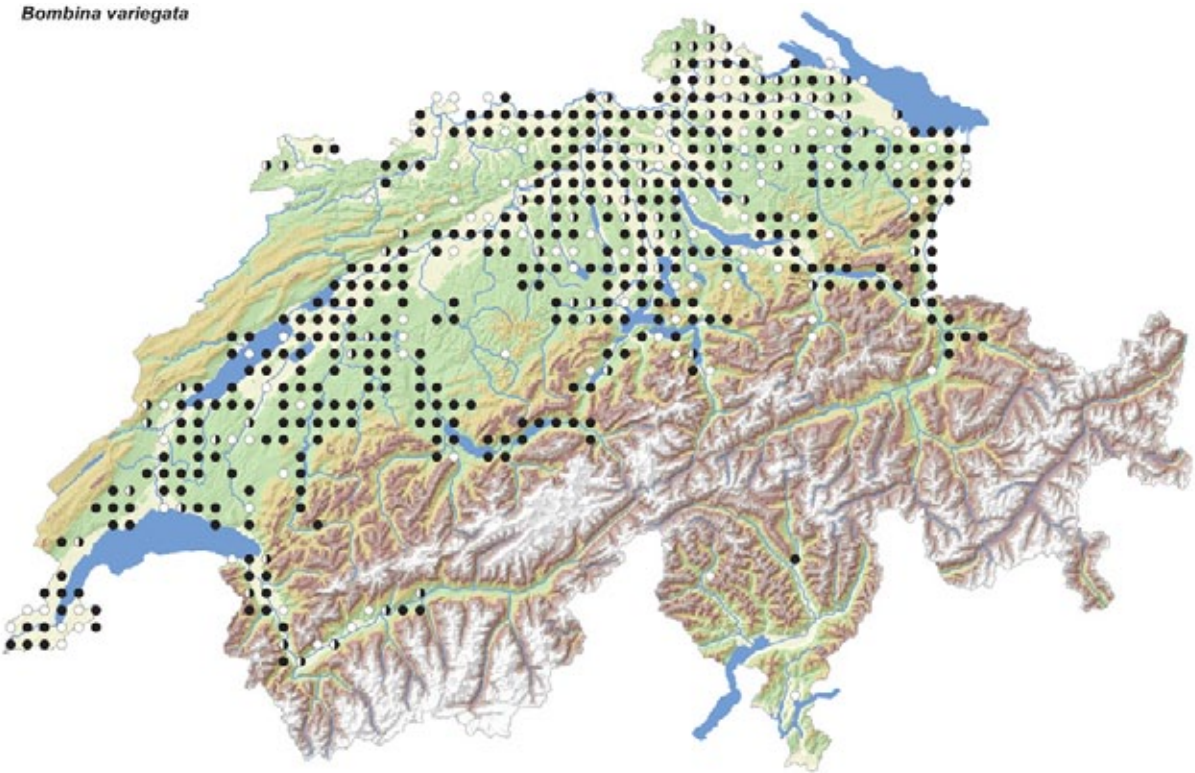

Figure 2. Map showing the distribution of the Yellow-bellied toad *Bombina variegata* in Switzerland. ○ < 1992 ◑ 1992 - 2001 ● 2002 - 2011. © Swisstopo and karch 2012.

Figure 3. Two Yellow-bellied toads *Bombina variegata* in amplexus. Photo: Andreas Meyer.

Figure 4. A newly created temporary pond in a gravel pit will be habitat for many endangered species. The pond is equipped with a drain. Photo: Mario Lippuner.

Amphibian species and their habitats have been protected by law since 1966. It is forbidden to harm or kill amphibians or to destroy their breeding sites. In 2001, the Swiss government published a list of ca. 800 amphibian breeding sites of federal importance (acronym: IANB; Ryser, 2002). These sites must be protected by the cantonal conservation authorities. A recent report by the Swiss government (Borgula et al. 2010), concluded that while the IANB initiated many amphibian conservation projects, many goals have not yet been met. More effort is necessary to maintain the conservation value of the amphibian breeding sites of federal importance. In 2011, the Swiss federal office of the environment launched a monitoring program for the amphibian breeding sites of federal importance. This will help to better assess the success of amphibian conservation in the amphibian breeding sites of federal importance and amphibians in general.

The major player in amphibian conservation in Switzerland is the "Koordinationsstelle für Amphibien- und Reptilienschutz in der Schweiz" (acronym: karch), the Swiss amphibian and reptile conservation program (www.karch.ch; the web site is available in German, French and Italian). Founded in 1979, karch is an independent foundation supported by the Swiss federal office for the environment. The duties of karch are described in the bylaws: "to support all activities, including research, that improve amphibian and reptile conservation." Currently karch has six part time employees that deal with amphibian and reptile conservation (Jean-Claude Monney, Andreas Meyer, Silvia Zumbach, Benedikt Schmidt, Ursina Tobler, Murielle Mermod), and a data base manager (Thierry Bohnenstengel). In addition, the IANB consultation service is also part of karch (one post). Also maintained by karch, is a network of local representatives in all the cantons who are paid by the cantonal offices for nature conservation. While local representatives deal with local amphibian and reptile conservation issues, karch itself deals with conservation issues at the federal and sometimes cantonal level. We launch amphibian conservation projects and provide expert advice on projects run by other organisations. karch closely collaborates with the Swiss federal office for the environment and provides advice on various issue, such as agricultural policy and the federal biodiversity strategy. Recently, the Swiss federal office for the environment provided funding for an additional employee. The person is responsible for the "1001 ponds project." The goal of this project is to construct 1001 new temporary ponds. karch also collaborates with universities on research topics such as chytridiomycosis, amphibian monitoring and assessment of the success of amphibian conservation projects.

In collaboration with CSCF, the Swiss centre for the cartography of the fauna, karch maintains an amphibian and reptile presence-only distribution data base. Currently (30 January 2012), 12,684 amphibian breeding sites and 160,529 observations of amphibians are registered in the data base. Most of the data were provided by herpetologists and naturalists. Other data are from systematic amphibian surveys, monitoring programs and research projects. While the distribution data are not freely available, the data can be used for research purposes, conservation projects and environmental impact assessments if data users comply with the data privacy policy.

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Literature Cited

Borgula, A., Ryser, J., and Fallot, P. (2010) Zustand und Entwicklung der Amphibienlaichgebiete von nationaler Bedeutung in der Schweiz: Ergebnisse der Erfolgskontrolle zum Schutz der Amphibienlaichgebiete. Bundesamt für Umwelt, Bern.

Cordillot, F., and Klaus, G. (2012) Gefährdete Arten in der Schweiz: Synthese Rote Listen. Stand 2010. Bundesamt für Umwelt, Bern.

Escher, K. (1972) Die Amphibien des Kantons Zürich. Vierteljahresschrift der naturforschenden Gesellschaft Zürich 117: 335-380.

Gimmi, U., Lachat, T., and Bürgi, M. (2011) Reconstructing the collapse of wetland networks in the Swiss lowlands 1850-2000. Landscape Ecology 26: 1071-1083.

Grossenbacher, K. (1988) Verbreitungsatlas der Amphibien der Schweiz. Documenta faunistica helvetiae 7: 1-207.

Heusser, H. (1968) Wie Amphibien schützen? Flugblatt Naturforschende Gesellschaft Schaffhausen 3: 1–14.

Hotz, H., and Broggi, M. F. (1982) "Rote Liste der gefährdeten und seltenen Amphibien und Reptilien der Schweiz." Schweizerischer Bund für Naturschutz, Basel.

Imboden, C. (1976) "Leben am Wasser: Kleine Einführung in die Lebensgemeinschaften der Feuchtgebiete." Schweizerischer Bund für Naturschutz, Basel.

Meisterhans, K., and Heusser, H. (1970) Amphibien und ihre Lebensräume: Gefährdung – Forschung – Schutz. Natur und Mensch 12: 1–20.

Meyer, A., Zumbach, S., Schmidt, B., and Monney, J.-C. (2009) "Auf Schlangenspuren und Krötenpfaden: Amphibien und Reptilien der Schweiz." Haupt Verlag, Bern.

Ryser, J. (2002) "Bundesinventar der Amphibienlaichgebiete von nationaler Bedeutung: Vollzugshilfe." Bundesamt für Umwelt, Wald und Landschaft, Bern.

Schmidt, B. R., and Zumbach, S. (2005) "Rote Liste der gefährdeten Amphibien der Schweiz." Bundesamt für Umwelt, Wald und Landschaft, Bern.